

WHAT IS CLAIMED IS:

1. A screening system for determining the effect of a candidate compound on inflammatory response, said system comprising a test biological culture, assay reagents for measuring at least two parameters of ICAM-1, VCAM-1 E-selectin, P-selectin, IL-8, CD31, HLA-DR, eotaxin-3, MCP-1 MIG; and a data processor for analyzing the data from said biological culture in relation to at least one control biological culture of known activity, said biological culture comprising:

endothelial cells, at least two factors of TNF- α , IL-1, IL-4, histamine and IFN- γ in amounts sufficient to induce an inflammatory state for said endothelial cells.

2. A system according to Claim 1, wherein said biological culture control comprises a basal cell culture or a cell culture comprising the same factors as said test biological culture.

3. A system according to Claim 1, wherein said data processor produces a biomap from said data from said test biological culture and at least one control biological culture.

4. A system according to Claim 1, wherein at least three parameters are measured, at least one of which is an adhesion protein.

5. A system according to Claim 1, wherein said endothelial cells are incubated with said at least two factors for from about 6 to 72h prior to adding said agent.

6. A system according to Claim 1, wherein said data processor further comprise software for producing a biomap comprising the data from said biological culture and said control.

7. A method for testing the activity of a candidate compound on inflammatory response, said method comprising:

adding a candidate compound to a test biological culture comprising endothelial cells in an inflammatory state as a result of adding to said culture at least two of TNF- α , IL-1, IL-4, histamine and IFN- γ in an amount and incubating for a time sufficient to induce said inflammatory state;

measuring at least two parameters of ICAM-1, VCAM-1 E-selectin, P-selectin, IL-8, CD31, HLA-DR, eotaxin-3, MCP-1, and MIG and comparing the measurement of said at least two parameters with the measurement from a control biological culture, whereby the activity of said candidate compound is determined.

8. A method according to Claim 7, wherein at least one of said biological cultures is compared by preparing a biomap graph comprising rows visually depicting the measurement of each of said parameters from each of said test and control biological cultures.

9. A method according to Claim 7, wherein at least three parameters are measured including at least one adhesion protein.

10. A method according to Claim 7, wherein TNF- α , IL-1, IL-4, histamine and IFN- γ are incubated in said biological culture from 6 to 72h.

11. A method for testing the activity of a candidate compound on inflammatory response, said method comprising:

adding a candidate compound to a test biological culture comprising endothelial cells in an inflammatory state as a result of adding to said culture the factors TNF- α , IL-1, IL-4, histamine and IFN- γ in an amount and incubating for from about 6 to 72h sufficient to induce said inflammatory state;

measuring at least four parameters of ICAM-1, VCAM-1, E-selectin, P-selectin, eotaxin-3, MCP-1, IL-8, CD31, HLA-DR and MIG and comparing the measurement of said at least four parameters with the measurement from a control biological culture,

whereby the activity of said candidate compound is determined.

12. A method according to Claim 11, wherein said endothelial cells are primary cells.

13. A method according to Claim 12, wherein said primary cells are HUVEC.

14. A method according to Claim 11, wherein a control biological culture is employed having fewer than all of said factors.

15. A method for analyzing which cellular pathway of cells in an inflammatory state is affected by a compound, said method comprising:

adding a candidate compound to one portion of a test biological culture comprising endothelial cells in an inflammatory state as a result of adding to said culture at least two of the factors TNF- α , IL-1, IL-4, histamine and IFN- γ in an amount and incubating for a time sufficient to induce said inflammatory state, and adding an inhibitor compound known to inhibit one pathway to both of said portions;

measuring at least two parameters of ICAM-1, VCAM-1 E-selectin, P-selectin, IL-8, CD31, HLA-DR, eotaxin-3, MCP-1, and MIG in each of said portions and comparing the measurement of said at least two parameters in each of said portions;

whereby when said compound has no effect on said parameters in the portion containing said compound as compared to said portion in which said compound is present, said compound is affecting the same pathway as said inhibitor compound.

16. A method according to Claim 15, wherein said culture comprises all of said factors and at least four parameters are measured at least one of which is an adhesion protein.